

HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1940.



IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

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FOR THE YEAR 1940

Vol. IX, Part 2.

62—Acta Medica Philippina.

- a. GARCIA, E. Y., NAVARRO, R. J. & BAUTISTA, L., 1940.—“A case of cutaneous schistosomiasis involving *Schistosoma japonicum* eggs.” 1 (3), 339-345.

63—American Journal of Hygiene. Section D. Helminthology.

- a. BRACKETT, S., 1940.—“Studies on schistosome dermatitis. V. Prevalence in Wisconsin.” 31 (3), 49-63.
- b. BRACKETT, S., 1940.—“Studies on schistosome dermatitis. VI. Notes on the behavior of schistosome cercariae.” 31 (3), 64-73.
- c. HARTMAN, E., FOOTE, M. & PIERCE, H. B., 1940.—“Blood chemistry findings in early trichinosis of dogs.” 31 (3), 74-75.
- d. EISENBRANDT, L. L. & ACKERT, J. E., 1940.—“On the resistance of chickens to the intestinal nematode *Ascaridia lineata* (Schneider) following immunization.” 32 (1), 1-11.
- e. CATRON, L., 1940.—“The incidence of trichinosis in 300 autopsies at the University Hospital, Ann Arbor, Michigan.” 32 (1), 12-23.
- f. AUGUSTINE, D. L., 1940.—“Experimental studies on the validity of species in the genus *Strongyloides*.” 32 (1), 24-32.

(63a) Brackett investigated the distribution and etiology of schistosome dermatitis in Wisconsin during 1938 and 1939. Examination of the snail fauna of the infected areas revealed certain species of schistosome cercariae which are known to be causal organisms of “swimmer’s itch” and the incidence and distribution of such infected snails is indicated. A search was made for adult schistosomes in a large number of different species of birds inhabiting the State, and the possibility of human infection with adults of dermatitis-producing cercariae is discussed. Although the incidence of the dermatitis is comparatively low in Wisconsin, the possible occurrence of severe outbreaks under certain conditions is indicated. J.J.C.B.

(63b) Brackett emphasizes the importance of differences in behaviour of dermatitis-producing schistosome cercariae in facilitating the identification of the various species. He also contributes some further observations on their behaviour and reactions, such as the time of emergence, the effect of temperature on emergence, length of life, tendency to attach to objects, reaction to light, swimming power. He has devised a technique for catching cercariae in order to observe their activity and distribution in the normal habitat. The relation between the behaviour of cercariae and the incidence and intensity of outbreaks of “swimmer’s itch” is considered. J.J.C.B.

(63c) Hartman et al. investigated the blood of 3 dogs lightly infected with *Trichinella spiralis* (3 and 9 larvae per g. body weight). Calcium, phosphorus, non-protein nitrogen and chlorine were measured, as well as food intake, during the 6 weeks following infection. Such changes as took place were not very marked except for the latter, which fell off during the first

week and then increased gradually. It seems that the loss of appetite is the primary result of *Trichinella* infestation, and the changes in blood chemistry follow the lowered food consumption. C.T.C.

(63d) Eisenbrandt & Ackert find some difficulty in producing an immunity to *Ascaridia* infections in White Leghorn chickens following intracardial injections of specific nematode extract. Only a third of the chickens so treated became protected. Further, the amount of extract injected bore no relation to the degree of resistance which followed. Some of the birds developed precipitins in the blood sera but this too bore no correlation to the resistance of the chickens. P.A.C.

(63f) Augustine has examined the free-living development of *Strongyloides* from *Pan troglodytes*, *Macaca mulatta*, *Cebus apella* and the dog. The free-living females were not parthenogenetic. The primate strains gave several generations of free-living adults (filial males were very rare, however) but the dog strain gave only one. Cross-breeding experiments were carried out by placing virgin free-living females with males from another strain. In no case did hybridization occur. On this evidence the author considers that each strain studied constituted a distinct species. W.P.R.

64—American Journal of Tropical Medicine.

- a. FAUST, E. C. & DE GROAT, A., 1940.—“Internal autoinfection in human strongyloidiasis.” 20 (3), 359-375.
- b. D'ANTONI, J. S. & SAWITZ, W., 1940.—“The treatment of oxyuriasis.” 20 (3), 377-383.

(64a) Faust & de Groat review the literature dealing with the question of auto-infection in man with *Strongyloides stercoralis*. A case of human strongyloidiasis in which the authors found filariform larvae in the deeper layers of the bowel wall and liver is presented in support of the theory of intestinal auto-infection. Except for a localized eosinophilic response around the migrating worms no cellular reaction was provoked by this invasion. A short account of the measures necessary to minimise self infection with *S. stercoralis* is included. W.P.R.

(64b) D'Antoni & Sawitz found that strict hygienic measures alone did not reduce pinworm infection in an institution, whilst treatment with gentian violet was seen to eliminate this infection in 90% of the children in three institutions. Symptoms of medication with gentian violet were not serious, though vomiting was prevalent. During the testing some previously negative persons became positive, thus showing the importance of mass treatment in institutions and families. M.R.Y.

65—Annals of Applied Biology.

- a. JOHNSON, L. R., 1940.—“On the stem and bulb eelworm (*Anguillulina dipsaci* Kühn) with special reference to its occurrence on weeds of arable land.” 27 (2), 248-251.
- b. EDWARDS, E. E., 1940.—“Observations on a disease of *Scilla campanulata* Ait. due to the stem and bulb eelworm, *Anguillulina dipsaci* Kühn.” 27 (3), 422-432.

(65a) *Anguillulina dipsaci* is a widespread infection of cleavers (*Galium aparine*) and chickweed (*Stellaria media*) in eelworm infested oat fields, and the infection persists on these weeds in subsequent years when non-susceptible crops are grown. Experiments show that the strains infecting oats and rhubarb and these weeds are reciprocally infective. R.T.L.

(65b) Edwards describes in detail the symptoms of disease set up by *Anguillulina dipsaci* in the Spanish bluebell, *Scilla campanulata*, bulbs of which had been planted in a border where Primulas of various species had suffered severely from attacks by the same eelworm. It is evident that the parasite had transferred from Primulas to the Scillas. Leaves, flower-stalks, flowers and bulbs are affected and symptoms of disease for each of these are described. The worms in the pre-adult, infective stage can be carried upon and within seeds from infected seed capsules. T.G.

66—Annals of Internal Medicine.

- a. FAUST, E. C., 1940.—"Parasitology; a round table discussion." 13 (7), 1230-1240.
- b. KAUFMAN, R. E., 1940.—"Trichiniasis: clinical considerations." 13 (8), 1431-1460.

(66a) In a general discussion of the animal parasites of man important in the district of Louisiana, Faust deals with two aspects of the helminths. First he touches on methods of treatment and next considers the importance of animal parasites in the causation of pulmonary disease. He mentions briefly those which live permanently in lung tissue, e.g., *Paragonimus westermani*, in Japan and the East, those which normally migrate through the lungs, and finally those helminths or their products which may on occasion pass into the lung tissue. P.A.C.

67—Annals and Magazine of Natural History.

- a. BAYLIS, H. A., 1940.—"On a further collection of parasitic worms from the Belgian Congo." Ser. 11, 5 (29), 401-417.

(67a) Baylis has diagnosed a considerable collection of helminths, principally nematodes, received from various collectors, chiefly obtained in the Belgian Congo. With the list of determinations are notes on the morphology of the less well-known species and descriptions of *Amplicaeum schoutedeni* n.sp. from *Varanus niloticus* and *Raillietina* (*Fuhrmannetta*) *vandenbrandeni* n.sp. from *Psittacus erythacus*. R.T.L.

68—Annals of Medical History.

- a. PITFIELD, R. L., 1940.—"Sir Patrick Manson." 3rd Ser., 2 (1), 22-29.

69—Antiseptic. Madras.

- *a. SUKLA, R. R., 1940.—"Guinea-worm (dracontiasis)." 37, 34-38.

70—Archives de l'Institut Pasteur de Tunis.

- a. ANDERSON, C. & LEHUCHER, P., 1940.—"Premier cas d'onchocercose cutanée observé en Tunisie." 29 (1), 105-112.

71—Archivos Uruguayos de Medicina, Cirugía y Especialidades.

- a. BRITO-FORESTI, C. & SAYAGUÉS, C., 1940.—"Un caso de equinocosis vertebral." 16 (3), 199-209.

72—Athena. Rassegna Mensile di Biologia-Clinica e Terapia.

- *a. PAZZINI, A., 1940.—"Animalculi, verminetti e microbi." 9, 25-29.

* Original not available for checking or abstracting.

73—Australian Veterinary Journal.

- a. BYRNE, K. V., 1940.—“Veterinary notes on a Central Riverina District, 1935-1938.” 16 (3), 122-126.

(73a) In this article, which is a summary of matters of veterinary interest encountered during a period of 4 years as an Inspector of Stock in the Pastures Protection Districts of Urana and Corowa, N.S.W., Byrne gives notes on the principal diseases occurring in farm animals. The helminths of most importance were the trichostrongyles of sheep, the small intestinal species being especially concerned. During the drought years of 1937 and 1938 very heavy losses occurred from trichostrongylosis. *Haemonchus contortus*, *Trichuris ovis*, *Dictyocaulus filaria*, *Chabertia ovina* and *Moniezia* spp. were also encountered but to far less extent. In horses, strongylid parasites presented an important problem and *Habronema* sp. was frequently encountered. Ascariasis in pigs caused considerable trouble in some of the large piggeries. J.W.G.L.

74—Berliner und Münchener Tierärztliche Wochenschrift.

- a. JACOB, E., 1940.—“Zur Behandlung einiger parasitärer Fischkrankheiten.” Jahrg. 1940 (14), 161-162.
b. NÖRR, J., 1940.—“Santostibin bei Spulwurmbefall des Pferdes.” Jahrg. 1940 (17), 195-197.

(74a) In the course of brief notes on parasitic diseases of fish, Jacob mentions an infection of golden orfe, *Leuciscus idus*, with *Dactylogyrus elongatus*. The trematodes were found mainly on the gills and were responsible for the death of some of the fish. A.E.F.

(74b) Nörr reports “Santostibin” to be effective against *Parascaris equorum* in the horse. It may be given in one dose of 30 g., in 2 to 3 doses of 15 g. each, or in 3 to 5 doses of 10 g. each, mixed with bran. Single doses of more than 30 g. caused toxic symptoms. A.E.F.

75—Biological Bulletin.

- a. HADLEY, C. E. & CASTLE, R. M., 1940.—“Description of a new species of *Maritrema* Nicoll 1907, *Maritrema arenaria*, with studies of the life history.” 78 (2), 338-348.

(75a) *Maritrema arenaria* n.sp. is found in large numbers in the intestines of all *Arenaria interpres morinella* in the Woods Hole region, and the encysted metacercaria heavily infests *Balanus balanoides* on which the birds feed. No corresponding xiphidiocercaria of the “ubiquita” group was found in the common molluscs during the summer, nor did these become infected after long contact with mature ova. The incidence of cercaria in the molluscan host may be strictly seasonal. N.G.S.

76—Boletín del Laboratorio de la Clínica Luis Razetti.

- a. IRIARTE, D. R., 1940.—“Sospechas de focos de bilharziosis en el oriente de la República.” 1 (1), 15-16.

(76a) Iriarte has found *Schistosoma mansoni* in the State of Sucre, in the east of Venezuela. Ampularid snails have been found locally, but as yet no planorbids. The infestation appears to exist also in the island of Margarita. B.G.P.

77—Bulletin de l'Académie Vétérinaire de France.

- a. COCU, 1940.—“Un cas de cysticercose oculaire chez le cheval.” 13 (1), 26-27.

(77a) Cocu reports having seen a cysticercus masking the median half of the pupil in the eye of a Percheron. The invaginated scolex was clearly visible through the ophthalmoscope. As the horse was living, detailed examination of the parasite was impossible.

B.G.P.

78—Bulletin de la Société de Pathologie Exotique.

- a. RADAODY-RALAROSY, P. & GUIDONI, P., 1940.—“Un cas d'abcès filarien à localisation inguinale chez un Antaimoro.” 33 (4), 292-295.

79—Canadian Journal of Comparative Medicine.

- a. WICKWARE, A. B., 1940.—“Effects of freezing temperatures on the embryonation of eggs and infectivity of larvae of *Heterakis gallinae*.” 4 (4), 110-116.
 b. MURRAY, S., 1940.—“Parasitic aneurysm of the coeliac axis.” 4 (4), 117-118.
 c. SWALES, W. E., 1940.—“The helminth parasites and parasitic diseases of sheep in Canada. II. Notes on the effect of winter upon the free-living stages of nematode parasites of sheep on the pastures in Eastern Canada.” 4 (6), 155-161.
 d. SWALES, W. E., 1940.—“Will phenothiazine cause photosensitization in sheep?” 4 (6), 164-165.
 e. ANON, 1940.—“Trichinosis.” 4 (6), p. 174.

(79a) Wickware has examined the embryonation and infectivity of eggs of *Heterakis gallinae* which in the non-embryonated state were kept at temperatures below freezing point for periods up to 172 days. A very large percentage of such eggs developed when thawed, and the resulting embryos were infective to chickens, though the percentage so doing was lower than in the control groups which had not been frozen. There seems no doubt therefore that large numbers of eggs are able to withstand wintry conditions and remain infective.

P.A.C.

(79c) In most parts of Canada the severity of the winter causes the land to be rested for about 5 months in the year. In Eastern Canada the pastures are used by livestock for less than 7 months. *Haemonchus* and *Oesophagostomum* are unable to resist these severe conditions. As infection depends therefore on the carry-over of adults from season to season the successful use of anthelmintic medication before each grazing season should effectively break the life-cycle of these parasites.

R.T.L.

(79d) The administration of 48 g. of phenothiazine failed to induce solar eczema in yearling sheep.

R.T.L.

80—Canadian Journal of Research. Section D. Zoological Sciences.

- a. GRIFFITHS, H. J., 1940.—“Studies on *Strongyloides agoutii* sp. nov. from the agouti (*Dasyprocta agouti*).” 18 (5), 173-190.
 b. SWALES, W. E., 1940.—“Further experiments on the use of phenothiazine as an anthelmintic for sheep.” 18 (7), 266-271.
 c. COLLIER, H. B., 1940.—“The fate of phenothiazine in the sheep.” 18 (7), 272-278.
 d. SWALES, W. E. & COLLIER, H. B., 1940.—“Studies on effects and excretion of phenothiazine when used as an anthelmintic for sheep.” 18 (7), 279-287.

(80a) Griffiths gives an account of the morphology and biology of *Strongyloides agoutii* n.sp. from the small intestine of *Dasyprocta agouti* (Trinidad). Ventral caudal papillae, one post-anal and one pre-anal, were found equidistant from the anus of the rhabditiform male. No spears were found in the oesophagus of the free-living forms and there was no marked post-vulvar constriction in free-living females. Eggs only appeared in fresh faeces and the life-history was indirect. The dimensions of the agouti species distinguished it from the much smaller *S. ratti*. Continuous propagation of the free-living generation was not observed in faecal cultures or on artificial media. W.P.R.

(80b) Swales has improved his earlier method of making a compressed tablet of Phenothiazine for administration in cases of gastro-intestinal helminthiasis. His formula now is: commercial phenothiazine, 80 parts; starch, 8 parts; sod. bicarbonate, 5 parts; tartaric acid, 4 parts; sod. choleate, 2 parts; phenolphthalein, 1 part. The tablets weighing 12.5 g. are about 1.5 inches in length, and 4 tablets can be administered to a sheep in about half a minute if a simple speculum with bars is used. A table is given of the effects of the drug on 9 sheep and lambs. The estimated average percentage efficiency of treatment is: *Haemonchus* and *Ostertagia* 100%, *Moniezia* 0%, *Monodontus* 89%, *Nematodirus* 72%, *Cooperia* 85%, *Trichostrongylus* 81%, *Strongyloides* 0%, *Trichuris* 0%, *Chabertia* 94%, *Oesophagostomum* 96%. The dosage varied from 19 g. to 46.5 g. and averaged approximately 28 g. of the pure chemical. R.T.L.

(80c) The presence and amount of Phenothiazine and its derivations passed after oral administration, in the faeces, urine and milk of sheep, and their occurrence in the blood have been studied by Collier. Only unchanged Phenothiazine was detected in the faeces. A derivative, provisionally identified as leuco phenothiazone sulphate, was present in the urine, the blood serum and the milk. About one half of the Phenothiazine remained absorbed, the remainder being passed as derivatives in the urine. The milk of lactating ewes turned a pink colour on exposure to air. R.T.L.

(80d) When therapeutic doses of Phenothiazine were administered to sheep, over 80% of the total dose was recovered in roughly equal amounts from the faeces and from the urine. The maximum concentration of Phenothiazine derivatives occurred in the blood and urine after about 6 hours. The high concentration of leuco phenothiazone in the urine with its rapid oxidation to an intensely red dye on exposure to air constitutes an objectionable feature in the practical use of the drug by discolouring the wool. Evidence was obtained that the drug had a bacteriostatic effect on the milk. R.T.L.

81—Canadian Medical Association Journal.

- a. SUTTON, J. C., 1940.—“Hydatid disease.” 42 (3), 247-250.

82—Canadian Public Health Journal.

- a. KUITUNEN-EKBAUM, E., 1940.—“The incidence of enterobiasis in children in a convalescent home in Toronto.” 31 (6), 287-290.

(82a) The incidence of pinworms in institutional children in Toronto as revealed by the NIH swab (3.7 swabs per child) is reported as 67% of 73 in 1940 as compared with 73% of 67 in 1938. M.R.Y.

83—Chinese Medical Journal.

- a. HSÜ, H. F., FAN, Y. C., T'AN, C. C. & CH'IN, K. Y., 1940.—“Two cases of heavy infestation by *Ascaris lumbricoides*.” 57 (2), 168-175.
- b. WILLIAMS, T. H., 1940.—“*Echinococcus granulosus* in Szechwan.” 57 (2), 176-178.
- c. CHAO, C. S., 1940.—“Chinese anthelmintic prescriptions. Examples from the Han period to the present time.” 57 (3), 251-289.

84—Comptes Rendus des Séances de la Société de Biologie.

- a. BRUMPT, E., 1940.—“Confirmation des observations de A. Lutz sur les lésions tentaculaires de *Planorbis glabratus* (= *P. guadeloupensis*) déterminées par l'évolution sur place des miracidies de *Schistosoma mansoni*.” 133 (4), 625-628.

(84a) Brumpt confirms Lutz's observation that the miracidia of *Schistosoma mansoni* form small swellings visible to the naked eye, on the tentacles of *Planorbis glabratus* during their metamorphosis into sporocysts. These swellings do not occur in *Planorbis boissyi* or *Bullinus contortus* after infection with schistosome miracidia.

R.T.L.

85—Cornell Veterinarian.

- a. REBRASSIER, R. E., 1940.—“Methods of diagnosis and treatment of the intestinal parasites of small animals.” 30 (2), 133-140.

(85a) For the concentration of helminth eggs, Rebrassier finds a saturated solution of sodium nitrate more efficient than magnesium sulphate, common salt or sugar: it brings up heavy eggs like those of *Trichuris* particularly well. Notes on the appearance of the various eggs and on treatment are added.

B.G.P.

86—Deutsche Tierärztliche Wochenschrift.

- a. HERDEGEN, 1940.—“Aneurysma der Aorta abdominalis beim Pferd.” 48 (19), 217-219.

87—Geneeskundig Tijdschrift voor Nederlandsch-Indië.

- a. BONNE, C., 1940.—“Eenige verdere waarnemingen over echinostomiasis.” 80 (9), 537-548. [English summary pp. 547-548.]
- b. BONNE, C. & MREYEN, F. W., 1940.—“Over *Raillietina madagascariensis* (Davaine 1869).” 80 (21), 1310-1318. [English summary pp. 1317-1318.]

(87a) Bonne gives brief reports on 7 Javanese autopsies in which up to 190 *Echinostoma ilocanum* were found. As in Celebes, the second intermediaries of importance to man are probably fresh-water mussels of the genus *Corbicula*. Symptoms of human infestation include diarrhoea and bowel pains, and there is usually a transient eosinophilia. Eggs were still being passed 7 months after an experimental infestation.

B.G.P.

(87b) Bonne & Mreyen record the presence in Batavia of *Raillietina madagascariensis*. It occurred in a young Chinese boy and no other members of the family were infected. They describe the specimens in detail. P.A.C.

88—Hospital. Rio de Janeiro.

- a. ALMEIDA, G. DE, 1940.—“O síndrome gástrico da ancilostomose. Conselhos práticos.” 17 (1), 107-112.

89—Hukuoka Acta Medica.

- a. OKABE, K., 1940.—“A synopsis of trematode cysts in fresh water fishes from Hukuoka Prefecture.” 33 (3), 309-335. [In Japanese: English summary p. 19.]
- b. MIYAZAKI, I., 1940.—Tierversuch des *Paragonimus ohirai* Miyazaki, 1939.” 33 (3), 336-344. [In Japanese: German summary pp. 19-20.]

(89b) Miyazaki has obtained adult *Paragonimus ohirai* Miyazaki, 1939 by feeding metacercariae from the liver of *Sesarma intermedia* to rats, mice, cats, dogs, rabbits and guinea-pigs. Eggs appeared 40 days after feeding. The route of infection and the pathogenic effect appear to be as in *P. westermanni*, and there seems no reason why man should not also act as host. The egg size varies not only with the age of the fluke but also with the species of host.

B.G.P.

90—Hygienisk Revy.

- a. ANON, 1940.—“Några nya rön rörande trikiner.” 29 (2), 13-14.
- (90a) [Some new observations on *Trichinella*.]

91—Indian Journal of Veterinary Science and Animal Husbandry.

- a. BHALERAO, G. D., 1940.—“Observations on the anatomy of *Acanthostomum burminis* (Bhalerao, 1926).” 10 (1), 94-97.
- b. SRIVASTAVA, H. D., 1940.—“An unrecorded spirurid worm, *Rictularia cahirensis* Jägerskiöld, 1904, from the intestine of an Indian cat.” 10 (1), 113-114.
- c. SRIVASTAVA, H. D., 1940.—“Vermineous pneumonia in Indian buffaloes—*Bos bubalis*. (Preliminary report).” 10 (1), 117-118.
- d. BHATTACHARJEE, J., 1940.—“A check-list of the nematode parasites of the domesticated animals in Burma. II.” 10 (1), 119-120.

(91a) *Acanthostomum burminis* is assigned to a new genus *Atrophecaecum* on account of the intestinal caecae opening by means of lateral ani at some distance behind the posterior end of the body, and the right caecum being considerably atrophied.

N.G.S.

(91c) The occurrence of lungworms in the buffalo *Bos bubalis* is recorded for the first time by Srivastava. The parasite, which differs in some respects from *Protostrongylus rufescens*, will be described later.

R.T.L.

(91d) Bhattacharjee lists 12 nematode species from domesticated animals in Burma. All are recorded for the first time from Burma.

R.T.L.

92—Indian Medical Gazette.

- a. MAPLESTONE, P. A. & MUKERJI, A. K., 1940.—“Comparison of thymol and some other drugs in the treatment of hookworm infection.” 75 (4), 193-200.

(92a) A detailed comparison of the efficacy of thymol and tetrachlorethylene leads the authors to conclude that the latter is the better anthelmintic for hookworm infection on the grounds of lower cost, lower toxicity, greater ease of dispensing, greater efficiency and shorter duration of treatment.

R.T.L.

93—Japanese Journal of Medical Sciences. VI. Bacteriology and Parasitology.

- a. YAMAGUTI, S., 1940.—“Studies on the helminth fauna of Japan. Part 30. Cestodes of birds, II.” 1 (4), 175-211.
- b. YAMAGUTI, S. & MIYATA, I., 1940.—“*Nippotaenia mogurndae* n.sp. (Cestoda) from a Japanese freshwater fish *Mogurnda obscura* (Temm. et Schleg.).” 1 (4), 213-214.

(93a) Continuing his studies on the helminths of Japan, Yamaguti now records the presence of 26 cestodes from birds, 17 of which are already known. For a parasite of *Colymbus arcticus pacificus* he creates a new genus and new species *Paratetrabothrius orientalis*. This can be recognised by the post-ovarian position of the testes. Of the other new species *Tetrabothrius rostratulae* is the first record of this genus in Charadriid birds; the Dilepididae are represented among the new species by *Dilepis hamasigi*, *Angularella taiwanensis* and *A. ripariae*. He makes 4 new species of *Hymenolepis*: *H. hamasigi*, *H. lari*, *H. clavicirrus* and *H. mergi*. Among the species already known to science, Yamaguti not only obtained the adult form of *Paradilepis scolecina* from *Phalacrocorax carbo hanae* but also obtained the cysticeroid from *Gnathopogon elongatus caeruleus*.
P.A.C.

(93b) Yamaguti & Miyata describe *Nippotaenia mogurndae* n.sp. from the fish *Mogurnda obscura* in Japan. This is only the second known species of the genus and can be distinguished by the number and appearance of the proglottides and by the forward extent of the uterus. The most interesting fact, however, is that the segments become detached while still immature and only complete their development to maturity away from the parent chain.
P.A.C.

94—Japanese Journal of Zoology.

- a. FUJITA, T., 1940.—“Further notes on nematodes of salmonoid fishes in Japan.” 8 (4), 377-394.

(94a) Fujita describes and figures *Contracaecum okadai* and *C. salvelini* n.spp. from *Salvelinus malma*; *C. longispiculum* n.sp. from *Oncorhynchus keta*; *C. mesopi* n.sp. from *Mesopus olidus*; *C. oshoroensis* n.sp. from *Oncorhynchus keta* and *Mesopus olidus*; *Goezia oncorhynchi* n.sp. from *Oncorhynchus keta*; *Cystidicola minuta* and *C. mesopi* n.spp. from *Mesopus olidus*; *C. chitosensis* n.sp. from *Oncorhynchus masou*; *Rhabdochona oncorhynchi* n.sp. from *O. keta*; *Philometra masu* n.sp. from *O. masou*; and *Philonema elongata* n.sp. from *O. kawamurae*. Three tables summarize the host-distribution of these and other nematodes in salmonoid fishes in Japan.
B.G.P.

95—Journal of the American Medical Association.

- a. LEWIS, W. L., BOLLER, A. E., HOSKINS, H. P., MERILLAT, L. A. & SMITH, H. R., 1940.—“Trichinosis and nonclinical infections with *Trichinella spiralis*.” 114 (1), 35-39.
b. ANDES, J. E., GREENE, R. A. & BREAZEAL, E. L., 1940.—“Early mild infestation with the parasite *Trichinella spiralis*.” 114 (23), 2271-2275.

(95a) The total number of cases of clinical trichinosis officially recorded in the United States from 1842 to 1937 amounts to between 5,000 and 6,000. Recent necropsy surveys have shown that *Trichinella* larvae occurred in about 18% of the diaphragms examined, although none of these cases had a definite clinical history. Out of the 1,000 diaphragms examined only 3 had 500 to 1,000 larvae per gram of muscle and 5 only had more than 100 larvae per gram. The authors are therefore of opinion that much confusion has resulted from failure to distinguish between trichinosis as a disease and *Trichinella* infection unaccompanied by apparent illness.
R.T.L.

(95b) Andes, Greene & Breazeale have had the opportunity of examining 10 suspected *Trichinella spiralis* cases in the earliest days after infection—8 of them within three days of the onset of symptoms. They all complained of

malaise, fever, headache, abdominal discomfort and oedema round the eyes. There was a definite eosinophilia which tended to rise during the day. When skin tests were performed positive reactions were obtained. Administration of tetrachlorethylene gave immediate relief and cure.

P.A.C.

96—Journal of the American Veterinary Medical Association.

- a. LUCKER, J. T., 1940.—“Treating horse-stable manure with steam to kill parasite eggs and larvae.” 96 (755), 188-194.
- b. BENBROOK, E. A., 1940.—“The occurrence of the guinea-worm, *Dracunculus medinensis*, in a dog and in a mink, with a review of this parasitism.” 96 (755), 260-262.
- c. STOLL, N. R., 1940.—“Worm-host systems as labile mechanisms: a view of the nematode-ruminant problem.” 96 (756), 305-308.
- d. SWANSON, L. E., HARWOOD, P. D. & CONNELLY, J. W., 1940.—“Phenothiazine as an anthelmintic for the removal of intestinal worms from swine.” 96 (756), 333-338.
- e. GASSNER, F. X. & THORP, jr. F., 1940.—“Studies on *Thysanosoma actinoides*.” 96 (756), 410-411.
- f. BEAUDETTE, F. R., 1940.—“A case of *Collyrichum faba* infestation in a purple finch.” 96 (756), 413-414.
- g. SWANSON, L. E., PORTER, D. A. & CONNELLY, J. W., 1940.—“Efficacy of nonconditioned phenothiazine in removing worms from the alimentary canal of cattle.” 96 (759), 704-707.
- h. LO, C. S. & HSIA, T. Y., 1940.—“Ascariasis in a giant panda (= *Ailuropus melanoleucus*).” 97 (760), p. 53.

(96a) Lucker describes and illustrates a box of 91 cub. ft. capacity for the steam sterilisation of horse-stable manure. Infective strongyle larvae are killed almost instantaneously at 130°F. The eggs, said to be more resistant, cannot survive 140°F. to 158°F. The effective steaming time ranged from 10 to 35 minutes. In completely successful tests the total steaming time varied from 1½ to 2½ hours. Ascaris eggs present in two of the tests were also killed.

R.T.L.

(96b) Guinea-worm is reported from a dog at Sioux Falls, S. Dakota, U.S.A., and from a mink at Cedar Falls, Iowa. No endemic cases in man are known for the United States, where this parasite has not been reported previously from the dog and once only from the mink.

R.T.L.

(96c) While worm parasites may destroy their hosts, the hosts may react against the worms and not only bring about their expulsion but prevent further parasitism. In *Haemonchus* infections the sheep host can develop an excellent immunity by simply being fed with more and more worms resulting in a physiological crisis and the expulsion of the whole or a large part of the infection. With the development of the immunity, weight and haemoglobin increase and unthriftiness disappears. The same result may follow on pasture as in a laboratory experiment and with other nematode infections. These immunities are usually not sterilizing immunities, possibly they are maintained by residual infections. Moreover, they are specific. If the host becomes immunized to the predominant species it can usually cope with the others. This host mechanism is favoured if the intake of worm infection is not too rapid or overwhelming, if the host is well fed and if there is no constitutional drain, e.g., lactation or, in the case of rams, breeding periods. Other constitutional drains are severe chills, psychic or physical injury by dogs, etc.

R.T.L.

(96d) Phenothiazine appears to possess several important advantages over other drugs in the treatment of helminths of pigs but its use is not recommended unconditionally at present. The recrystallised product or the drug without a "conditioner" should be used. It would appear that a dose of not less than 5 g. of recrystallised Phenothiazine per animal should be used as this amount did not remove a satisfactory percentage of ascaris worms in the tests now reported upon. The dosage should be regulated according to the body weight, e.g., 5 g. for 11.4 kg., 8 g. for 11.4 to 22.8 kg., 12 g. for 22.8 to 45.5 kg., 20 g. for 45.5 to 91 kg., and 30 g. for over 91 kg. R.T.L.

(96e) Although *Thysanosoma actinioides* is only slightly, if at all, pathogenic to lambs, it is important economically in the United States as the infected livers are condemned. A brief account is given of the gravid segments and of the eggs. R.T.L.

(96g) Phenothiazine has been found to be of considerable value in the treatment of gastro-intestinal nematodes in calves. It proved 100% effective against *Haemonchus contortus* and *Trichostrongylus axei*, and 99.8% effective against *Oesophagostomum radiatum*. Against *Bunostomum phlebotomum*, *Ostertagia ostertagi* it was also potent, but the effect was slight in *Cooperia* spp. infections and there was none against *Trichuris*, *Strongyloides* and *Moniezia*. The drug is comparatively non-toxic for calves. R.T.L.

(96h) Lo & Hsia give a very brief description of an ascarid from the giant panda, believed to be a new species. B.G.P.

97—Journal of the Council for Scientific and Industrial Research. Australia.

- a. GORDON, H. McL. & WHITTEN, L. K., 1940.—"A field trial comparing phenothiazine, tetrachlorethylene emulsion, and copper sulphate and nicotine sulphate mixture for the treatment of trichostrongylosis." 13 (2), 81-85.
- b. GORDON, H. McL., 1940.—"Studies on phenothiazine as an anthelmintic. A comparison of the efficiency of finely and coarsely ground phenothiazine against *Oesophagostomum columbianum*." 13 (2), 85-86.
- c. GORDON, H. McL., 1940.—"The anthelmintic efficiency of Lentin (Merck) against *Oesophagostomum columbianum*." 13 (2), 87-90.
- d. KAUZAL, G. P., 1940.—"Experiments on the recovery of sheep nematode larvae from pastures." 13 (2), 95-106.

(97a) In lambs about 5 months old and weighing about 20 kg., Phenothiazine in doses of 15 g. shaken up in about 60 ml. water proved highly efficient against *Trichostrongylus* and gave good results against *Oesophagostomum venulosum* and *Chabertia ovina*. No ill effects were observed and the results were based on egg reduction. Tetrachlorethylene as a dose of 3.5 ml. in 20 ml. of an emulsion (consisting of water, liquid paraffin, oleic acid and triethanolamine) followed by a dose of 3 ml. of 10% copper sulphate solution was also highly efficient against *Trichostrongylus* spp. but the effects on the sheep may be very serious. The mixture of copper sulphate and nicotine which is usually prescribed gave very poor results and there was transient inco-ordination after treatment. R.T.L.

(97b) Phenothiazine given as a very finely divided powder proved more efficient against *Oesophagostomum columbianum* in sheep than when administered as a coarser powder prepared by fusing Thiox into large lumps and then grinding until the particles passed through a sieve of 20 to the inch but not through one of 30 to the inch. R.T.L.

(97c) "Lentin" even in doses in excess of those recommended by the manufacturers is not only inefficient both in laboratory and field trials against *Oesophagostomum columbianum*, *Haemonchus contortus* and *Trichuris ovis* but its use was attended with fatal toxicity in 6 out of 22 sheep. R.T.L.

(97d) Kauzal describes an apparatus for isolating larvae and eggs of sheep nematodes from soil and pastures. The attempts of previous workers are reviewed. The principle underlying the method of isolation recommended relies on the fact that there is a lateral as well as a vertical migration of larvae from the soil. The apparatus resembles one published by Africa (1931). It consists of two Petri dishes, the inner one about an inch less in diameter than the outer one. The grass plot is placed in the inner Petri dish. The outer Petri dish is filled with water and acts as a trap for the migrating larvae. The two Petri dishes are covered by a bell jar to maintain a constant humidity. [A similar technique has been published by Clayton Lane in connection with studies on hookworm larvae.] R.T.L.

98—Journal of the Department of Agriculture of Victoria.

- a. MILLIKAN, C. R., 1940.—"Sugar beet diseases. Progress report of investigations." 38 (1), 35-48.

99—Journal of Experimental Zoölogy.

- a. GLASER, R. W., 1940.—"Continued culture of a nematode parasitic in the Japanese beetle." 84 (1), 1-12.

(99a) According to Glaser the oxyurid nematode, *Neoaplectana glaseri*, a parasite of the Japanese beetle, *Popillia japonica*, can be successfully reared on a 2% dextrose-veal infusion agar along with living yeast. After about the 7th-8th transplant, however, the culture becomes sterile as the female worms fail to develop eggs owing, probably, to the exhaustion of a reserve of some growth factor. The nematodes can be restored to fertility either by passage through the host beetle for some generations or by the addition to the cultures of certain substances including beetle host substance and bovine ovarian substance. [See also below No. 119b.] T.G.

100—Journal of Helminthology.

- a. LEROUX, P. L., 1940.—"On the division of the genus *Oesophagostomum* Molin, 1861, into subgenera and the creation of a new genus for the oesophagostomes of the wart-hog." 18 (1), 1-20.
- b. GOODEY, T., 1940.—"On *Anguillulina multicincta* (Cobb) and other species of *Anguillulina* associated with the roots of plants." 18 (1), 21-38.
- c. CLAPHAM, P. A., 1940.—"On wild birds as transmitters of helminth parasites to domestic stock." 18 (1), 39-44.
- d. CLAPHAM, P. A., 1940.—"Studies on *Coenurus glomeratus*." 18 (1), 45-52.
- e. ROGERS, W. P., 1940.—"Haematological studies on the gut contents of certain nematode and trematode parasites." 18 (1), 53-62.

(100a) LeRoux gives details of the structure and arrangement of the leafcrown elements in the buccal cavity of oesophagostomes. He discusses the question of the subdivision of the genus *Oesophagostomum* into subgenera and, concluding that this should be done, accepts the subgenera of previous workers and proposes 2 new subgenera for the reception of species collected from African game animals. These subgenera are *Hudsonia* n.subg. (including *O. (H.) roscoei* n.sp.) and *Pukuia* n. subg. for *O. (P.) lechwei* n.sp.

For certain nematodes from the wart-hog, included by earlier workers in the genus *Oesophagostomum*, leRoux proposes a new genus *Daubneyia* to include the following species :— *D. mwanzae*, *D. oldi*, *D. yorkei*, *D. goodeyi*, *D. roubaudi*, *D. simpsoni* and *D. eurycephalum*. T.G.

(100b) Goodey gives detailed technical descriptions of the morphology and structure of the adults of certain root-invading and allied species of the nematode genus *Anguillulina*. *A. multincta* (Cobb) from lesions in banana roots is described and figured. *A. erythrinae* (Zimmermann), a species which in an earlier paper was identified with *A. multincta*, is now separated from it and is redescribed and figured. An account is given of the adult female and male of *A. robusta* (de Man) and the male of *A. obtusa* (Bastian) is adequately described and figured for the first time. In the case of each species its systematic relationships are discussed, whilst the hosts of those species parasitic in roots are given. T.G.

(100c) Clapham puts forward evidence to show that some wild birds, in particular rooks and starlings, spread eggs of helminths of fowls to fresh pastures where they may infect or set up disease in domestic stock. Furthermore young chickens may even become infected with some parasites which normally reside in the wild birds, though there is no evidence that older birds may take such infections. P.A.C.

(100d) It has been shown that *Multiceps glomeratus* can complete its life cycle in various small rodents. The form and reactions of the larva in different hosts are described. There is some evidence of the production of antibodies in the vector; positive intradermal reactions were obtained using specific antigen. P.A.C.

(100e) Rogers has shown that haematin is the result of the digestion of ingested haemoglobin in *Strongylus edentatus* and *S. vulgaris*. The quantities of haematin present in the intestines of the worms were estimated spectrographically and it was found that a single *S. edentatus* requires a maximum of 0.009 ml. of host blood to account for the amounts of haematin found. In *S. vulgaris* 0.0009 ml. was the maximum amount required. Haematin was also found in the intestines of a large proportion of the *Toxocara canis* and *T. mystax* examined. It was calculated that *T. canis* may ingest up to 0.0001 ml. of host blood. Haematin was found in the intestines of *Syngamus trachea*, and a small proportion of the *Ascaris lumbricoides* also contained it. Evidence was produced to show that the black pigment in the intestines of *Schistosoma mansoni* and *S. matthei* was haematin. W.P.R.

101—Journal of Infectious Diseases.

- a. CAMPBELL, D. H. & MELCHER, L. R., 1940.—“Relationship of sex factors to resistance against *Cysticercus crassicolis* in rats.” 66 (2), 184-188.

(101a) Campbell & Melcher find that female rats are more resistant to infection with *Taenia taeniaeformis* than are males. Removal of the ovaries lowers their resistance and addition of male hormones makes the resistance still less. Analogous treatment increases the resistance of the male, but at no time does the resistance of the hormone-treated castrated male ever exceed that of the female, however treated. It would seem that oestrogens are active in the production of immunity and the degree of resistance to invasion with this parasite varies directly with the degree of feminization. P.A.C.

102—Journal of Parasitology.

- a. GLASER, R. W. & STOLL, N. R., 1940.—“Exsheathing and sterilizing infective nematode larvae.” 26 (2), 87-94.
- b. SCHULTZ, R. L., 1940.—“Some observations on the amabiliid cestode, *Tatria duodecacantha* Olsen, 1939.” 26 (2), 101-103.
- c. LANDSBERG, J. W. & ACCOUSTI, N. J., 1940.—“Pyrethrum as an ascaricide, *in vitro* studies.” 26 (2), 105-110.
- d. BYRD, E. E., PARKER, M. V. & REIBER, R. J., 1940.—“A new genus and two new species of digenetic trematodes, with a discussion on the systematics of these and certain related forms.” 26 (2), 111-122.
- e. BAER, J. G., 1940.—“The origin of human tapeworms.” 26 (2), 127-134.
- f. ALICATA, J. E., 1940.—“The life cycle of *Postharmostomum gallinum*, the cecal fluke of poultry.” 26 (2), 135-143.
- g. HERMAN, C. M. & GOSS, L. J., 1940.—“Trichinosis in an American badger, *Taxidea taxus taxus*.” 26 (2), p. 157.
- h. MACY, R. W., 1940.—“Curtailement of egg production in the common ring-necked pheasant due to experimental infection with the oviduct fluke, *Prosthogonimus macrorchis*.” 26 (2), p. 158.
- i. COATNEY, G. R. & JELLISON, W. L., 1940.—“Some blood parasites from Montana birds.” 26 (2), 158-160.
- j. MIZELLE, J. D., 1940.—“Studies on monogenetic trematodes. III. Redescriptions and variations in known species.” 26 (3), 165-178.
- k. KOURI, P. & RAPPAPORT, I., 1940.—“A new human helminthic infection in Cuba.” 26 (3), 179-181.
- l. CHITWOOD, B. G. & GRAHAM, G. L., 1940.—“Absence of vitelline membranes on developing eggs in parasitic females of *Strongyloides ratti*.” 26 (3), 183-190.
- m. WARD, H. L., 1940.—“Notes on juvenile *Acanthocephala*.” 26 (3), 191-193.
- n. BRACKETT, S., 1940.—“Two new species of schistosome cercariae from Wisconsin.” 26 (3), 195-200.
- o. GRAHAM, G. L., 1940.—“Studies on *Strongyloides*. VI. Comparison of two homogenic lines of singly established *S. ratti*.” 26 (3), 207-218.
- p. McINTOSH, A., 1940.—“Some helminth parasites of the Panama otter.” 26 (3), 219-222.
- q. SHORB, D. A., 1940.—“A comparative study of the eggs of various species of nematodes parasitic in domestic ruminants.” 26 (3), 223-231.

(102a) Glaser & Stoll describe a method of causing exsheathing of certain nematode larvae under sterile conditions. A 1 in 20 dilution of Labarraque's solution is used, and the results obtained, as evidenced by subsequent culture of the larvae in media, are compared with results obtained with Milton solution and Carrel-Dakin's solution.

J.J.C.B.

(102b) Schultz amplifies a description of *Tatria duodecacantha* recently given by Olsen and has worked out a key for the identification of the species of the genus. He finds that the suckers are armed only at the margins and has some evidence of the occurrence of a postero-lateral vaginal pore and canal.

P.A.C.

(102c) Pyrethrum preparations have no activity *in vitro* against *Ascaris lumbricoides* from pigs. The value of pyrethrum as an anthelmintic can only be assayed, however, by *in vivo* tests.

R.T.L.

(102d) Byrd, Parker & Reiber describe a new genus *Paurophyllum* containing *P. simplex* n.sp. (type) and *P. megametricus* n.sp. from the kidneys of snakes *Lampropeltis getulus floridana* and *Agkistrodon piscivorus* respectively, from Florida. A detailed description of their excretory systems and that of *Leptophyllum tamiاميensis* is given and they are placed together in a new subfamily Leptophyllinae of the family Plagiorchiidae. The flame cell formula characterizing the new subfamily is: 2[(3+3+3)+(3+3+3)].

N.G.S.

(102f) The complete life cycle of *Postharmostomum gallinum* from Hawaiian fowls has been determined experimentally. Two intermediate hosts, both of which are land snails, are required. Eggs containing miracidia develop into branched sporocysts in the liver of *Eulota similis*; these liberate cercariae which may re-enter the original snail, or one of the same or another species by way of the renal aperture, there to develop in the pericardial cavity into adoleseariae. *Subulina octona* also harbours the adoleseariae of *Postharmostomum gallinum*. Adoleseariae from both naturally and experimentally infected snails of both species develop in young chickens, in less than a month, to the adult fluke.

N.G.S.

(102h) Macy shows that the ring-necked pheasant, *Phasianus colchicus torquatus*, is highly susceptible to infection with *Prosthogonimus macrorchis* and birds so parasitized lay fewer eggs than clean birds.

P.A.C.

(102i) Coatney & Jellison record the presence of microfilariae in the blood of the magpie, *Pica pica*. There were two forms, one measuring 71μ long by 5.6μ wide and the other 138μ long by 7μ wide.

P.A.C.

(102j) Descriptions are given of the Tetraonchinae, *Actinocleidus fusiformis*, *A. bursatus*, *Cleidodiscus banghami* and *Urocleidus furcatus*. New geographical and host records are also given for these and certain allied species.

R.T.L.

(102k) Eleven cases of infection with an unidentified species of *Inermicapsifer* are reported from Cuba. Nine of the cases came from Havana province. All the cases were young children.

R.T.L.

(102l) Chitwood & Graham have found that vitelline membranes (evidence of fertilization) are absent from the eggs of parasitic *Strongyloides ratti* females of strains producing either predominantly heterogonic or predominantly homogonic progeny. In no case were sperms found. The eggs of free-living females of the heterogonic generation had vitelline membranes and sperms could be seen in the genital tubes. It is concluded that the parasitic generation of *S. ratti* reproduce parthenogenetically whereas normal bisexual reproduction occurs in the free-living forms. Parasitic females of *Strongyloides* sp. from *Sciurus carolinensis* were also found to be parthenogenetic.

W.P.R.

(102m) Juvenile Acanthocephala of the species *Pomphorhynchus bulbocolli* were obtained from a number of small fish recovered from the stomachs of pike. Encysted juveniles, which were found in the intestinal wall of *Natrix sipedon*, belonged to *Centrorhynchus*.

R.T.L.

(102n) Two schistosome cercariae named *Cercaria elongata* and *C. gyrauli* n.spp. are described from the planorbis snail *Gyraulus parvus* in Wisconsin.

R.T.L.

(102o) Graham has found that all homogonic larvae of *Strongyloides ratti* are not constitutionally equivalent. Thus differences in the reproductive rate, life period, type of development, infectivity and the proportion of males in the free-living generations were found in two strains from homogonic lines of singly established *S. ratti*. These characters did not vary during serial homogonic passage. One such homogonic line showed similarity in

most respects to the heterogonic line from which it was derived, but had a higher infection rate. The author considers that the evidence presented indicates that new lines of *S. rattii* arise only through the agency of heterogony.

W.P.R.

(102p) 4,183 specimens of *Diplostomum fosteri* and 7 specimens of *Phagicola longa* were collected from *Lutra repanda*. No helminths have hitherto been recorded from this species of otter.

R.T.L.

(102q) Continuing his study of the differentiation of the eggs of nematodes from ruminants [see Helm. Abs., Vol. VIII, No. 413a], Shorb here presents a series of two-way frequency charts with egg-length and egg-breadth as the co-ordinates. There is one chart for each of the following genera: *Haemonchus*, *Capillaria*, *Oesophagostomum*, *Gongylonema*, *Nematodirus* and *Trichostrongylus*, and two for *Cooperia*. By the use of distinguishing symbols, two or more species of each genus are included in the one chart.

B.G.P.

103—Journal of the Royal Naval Medical Service.

- a. SCHRIRE, T., 1940.—“Hydatid disease of the lung and pleura.” 26 (1), 43-54.

(103a) [This paper appears also in South African Medical Journal, 1938, 12, 873-880. See Helm. Abs., Vol. VII, No. 415c.]

104—Journal of the Shanghai Science Institute. Section IV.

- a. KAWANA, H., 1940.—“Study on the development of the excretory system of *Fasciola hepatica* L., with special reference of its first intermediate host in Central China.” 5, 13-34.
- b. KOMIYA, Y. & TAJIMI, T., 1940.—“Study on *Clonorchis sinensis* in the district of Shanghai. 5. The cercaria and metacercaria of *Clonorchis sinensis* with special reference to their excretory system.” 5, 91-106.
- c. KOMIYA, Y., 1940.—“New species name *Cercaria altenwerdi*.” 5, p. 107.
- d. KOMIYA, Y. & TAJIMI, T., 1940.—“Study on *Clonorchis sinensis* in the district of Shanghai. 6. The life cycle of *Exorchis oviformis*, with special reference of the similarity of its larval forms to that of *Clonorchis sinensis*.” 5, 109-123.

(104a) Kawana has found that *Limnaea pervia* is the intermediary for *Fasciola hepatica* in Central China, as in Japan. In *L. plicatula* only the early stages will develop. He has made a detailed study of the excretory system in this fluke, from the miracidium with its single pair of flame-cells, through the sporocyst with up to 10 pairs, and the redia with up to 59 pairs, to the cercaria with 18 pairs and the young adult which appears to have a large and variable number. In each generation the excretory system starts as a single pair of flame-cells each of which opens to the exterior independently; the early cercaria differs from preceding generations, however, by having in addition excretory cilia in the canaliculi. In *Fasciola* irregularity in the flame-cell pattern is as characteristic as is regularity in some other genera. Kawana also traces the development in the adult of the excretory bladder, which finally becomes a complex network.

B.G.P.

(104b) The cercaria and metacercaria of *Clonorchis sinensis* are described, special attention being given to the excretory system. The first intermediate host in the Shanghai region is *Bithynia striatulus* while to the known second intermediaries in that area are added *Leucogobio polytaenia* and *Squaliobarbus curriculus*. *Pseudorasbora parva* is more generally a carrier of the cysts of *Metorchis orientalis* than of *Clonorchis sinensis*.

R.T.L.

(104c) The name *Cercaria altenwerdi* is proposed for *C. incerta* Komiya, 1938 which is preoccupied by *C. incerta* Faust, 1924. R.T.L.

(104d) Komiya & Tajimi give an illustrated account of the life-cycle of *Exorchis oviformis*, for which the first intermediary is a minute species of *Stenotyra*, the second one of several freshwater fish, and the definitive host probably the carnivorous fish *Parasilurus asotus*. They describe the larval stages and differentiate the cercaria and metacercaria from those of *Clonorchis sinensis* with which they were originally confused by Faust. B.G.P.

105—Journal of Tropical Medicine and Hygiene.

- a. DASSANAYAKE, W. L. P., 1940.—“Filariasis survey in Galle Town.” 43 (10), 133-135.

(105a) Dassanayake gives an account of filariasis in Galle Town, Ceylon. The main clinical type of the disease is the “limb” type, the commonest part affected being the left leg. Of 1,842 persons examined, 189 had microfilariae in their peripheral blood; in 52% of these cases the microfilariae were *Mf. malayi* and in 48% *Mf. bancrofti*. *Mansonia uniformis* and *Culex fatigans* are the probable vectors. J.J.C.B.

106—Journal of the Washington Academy of Sciences.

- a. KENT, jr., G. C., 1940.—“A new trematode from *Siren lacertina*: *Diplostomulum sirenis* n.sp.” 30 (2), 87-91.

107—Klinische Wochenschrift.

- a. MOHR, W. & LIPPELT, H., 1940.—“Bericht über weitere Ergebnisse mit der Filarien-Komplementbindungsreaktion.” 19 (7), 157-159.

(107a) Using an extract of *Contortospiculum rheae*, a parasite of South American ostriches, Mohr & Lippelt were able to diagnose filariasis in man by means of the complement-fixation test. Positive results were even obtained when no microfilariae were recovered from the blood stream. Though *F. perstans*, *Loa loa* and *Onchocerca* infections all reacted to the test, positives were unfortunately also obtained with heavy hookworm infections, with ascarids, *Strongyloides* and with *Schistosoma mansoni*. P.A.C.

108—Lancet.

- a. CAWSTON, F. G., 1940.—“Fouadin in bilharziasis.” [Correspondence.] Year 1940, 1 (6096), p. 1178.
b. THOMSON, A. P., 1940.—“Tularaemia or fluke infection.” [Correspondence.] Year 1940, 2 (6099), 83-84.

(108b) Thomson states that he has collected evidence [not quoted] that *Fasciola hepatica* in man is not nearly so rare in England as is generally believed. The 3 cases of unusual illness with eosinophilia, with lesions of the liver in one case, previously attributed by Wilson, Stuart & Thomson to *Brucella* infection may have been due to fluke infection. R.T.L.

109—Malayan Agricultural Journal.

- a. MARSH, T. D., 1940.—“The kidney worm of pigs, *Stephanurus dentatus* Diesing, 1839.” 28 (3), 106-111.

(109a) *Stephanurus dentatus* is the most serious helminth infestation of pigs in Malaya. It is more prevalent in European breeds and crosses with Chinese pigs than in pure-bred Chinese pigs. Concrete flooring or slatted

floors are recommended as a preventive. The heavy rainfall and continuous damp soil conditions in Malaya render eradication difficult. R.T.L.

110—Medical Journal of Australia.

- a. OXER, G. M., 1940.—“A proctological problem.” 27th Year, 1 (14), 483-484.
- b. FISHER, E. M., 1940.—“Hydatid cyst of the kidney.” 27th Year, 1 (18), 627-628.

(110a) [A case of hydatidosis of the pelvis and femur.]

111—Mississippi Valley Medical Journal.

- *a. SKINNER, G. A., 1940.—“Parasitology in human medicine.” 62, p. 13.

112—Münchener Medizinische Wochenschrift.

- a. SEIFFERT, G., 1940.—“Zur Methodik der Stuhluntersuchung auf Bazillen- und Wurmräger.” 87 (3), p. 73.

113—Nederlandsch Tijdschrift voor Geneeskunde.

- a. SCHWARZ, J. & STRAUB, M., 1940.—“Oxyures en appendicitis.” 84 (17), 1627-1634.

(113a) From an examination of 22 out of 36 appendices longitudinally sectioned in Rotterdam, the authors state that oxyurids cause characteristic lesions in the epithelium and mucosa. When they penetrate into the deeper layers they cause abscess formation, and encapsulation and calcification frequently follow. Most of the immigrations described by other authors are regarded as post-vital, and the authors maintain that oxyurids are an important cause of appendicitis and that this is a reason for serious consideration of an anti-pinworm campaign. M.R.Y.

114—Nuova Veterinaria.

- a. BALIAN, B., 1940.—“Studi sulla distomatosi. Nota prima. Ricerche ematologiche e biochimiche in bovini normali ed affetti da distomatosi epatica.” 18 (6), 134-142.
- b. BALIAN, B., 1940.—“Studi sulla distomatosi. Nota seconda. Ricerche ematologiche e biochimiche in ovini normali ed affetti da distomatosi epatica.” 18 (7), 154-160.

(114a) In 8 normal oxen, 5 recently infested with liver flukes (*Fasciola* and *Dicrocoelium*), and 13 chronically infested, Balian has undertaken clinical examinations, egg and parasite counts, and complete blood examinations. His results show an anaemia increasing with age of infestation, an initial leucocytosis followed by leucopenia, and slight changes in pH, molecular concentration, specific gravity, chlorides and total nitrogen in the serum. B.G.P.

(114b) On 4 normal sheep and 12 infested with liver flukes Balian has carried out examinations similar to those on cattle [see preceding abstract] and in addition has tested for glycaemia and determined the dry matter of the total blood. The results, analagous to those from cattle, are discussed in some detail. B.G.P.

115—Ohio State Medical Journal.

- a. OOSTING, M., 1940.—“Trichinosis: incidence in Dayton, Ohio.” 36 (1), 53-55.

* Original not available for checking or abstracting.

116—Parasitology.

- a. BAER, J. G., 1940.—“Some avian tapeworms from Antigua.” 32 (2), 174-197.
- b. DAVIES, T. I., 1940.—“Three closely related species of *Aploparaksis* Clerc, 1903.” 32 (2), 198-207.
- c. ROGERS, W. P., 1940.—“The effects of environmental conditions on the accessibility of third stage trichostrongyle larvae to grazing animals.” 32 (2), 208-225.

(116a) A small collection of avian cestodes from Antigua contained 8 species, of which *Hymenolepis capellae* n.sp. from the snipe *Capella delicata* is described as new.

R.T.L.

(116b) The main diagnostic features of *Aploparaksis filum*, *A. clerci* and *A. brachyphallos* are described by Davies from Welsh material.

R.T.L.

(116c) Rogers has studied the effects of environmental conditions on third stage trichostrongyle larvae by infecting the soil surface of standard plots of rye grass with known numbers of larvae, exposing the plots to known conditions and recovering the larvae from the grass by the Baermann technique. Movement under the influence of light was greatest at 62 foot candles. Increasing amounts of moisture in the soil up to 85% saturation assisted larvae to move on to the grass. Above this value, larval migration was retarded. Moisture on the grass, when less than 0.12 ml. per sq. cm. of soil surface, favoured larval migration. *Ostertagia* spp. were most favoured by the presence of moisture on the grass or in the soil. *Haemonchus contortus* was least favoured by its presence. Water on the soil surface reduced the ability of larvae to move on to the grass. In the temperature range examined, larvae were found to move on to the grass in greatest numbers at 5° C. and 45° C. *H. contortus* was most active at higher temperatures. The cycle of larval movement during the day was determined. Greatest numbers of larvae were recovered from the grass in early morning.

W.P.R.

117—Phytopathology.

- a. NEWHALL, A. G. & CHITWOOD, B. G., 1940.—“Onion eelworm rot or bloat caused by the stem or bulb nematode, *Ditylenchus dipsaci*.” 30 (5), 390-400.

(117a) Newhall & Chitwood give an account of an onion disease caused by the eelworm, *Ditylenchus dipsaci*, as it occurs in areas of New York State specially devoted to the cultivation of this crop. Details are given of fairly successful attempts at eradication by means of soil steaming and by the injection of chloropicrin into soil. The application of heavy dressings of sulphur to infected soil was not effective as a control measure. Symptoms of disease in seedlings and on older plants grown from “sets” are fully described. There is a valuable discussion on crops suitable for rotations with a view to control of the disease. [See also Helm. Abs., Vol. IX, Nos. 39c & 43j.]

T.G.

118—Plant Disease Reporter.

- a. BOYD, O. C. & CUNNINGHAM, H. S., 1940.—“Strawberry dwarf in Massachusetts and New York.” 24 (11), p. 224.

(118a) Boyd & Cunningham report on the occurrence of strawberry dwarf disease, caused by *Aphelenchoides fragariae*, in Massachusetts and New York respectively. In Massachusetts the incidence of the disease was less than in previous years, probably due to the dry season in 1939 and the severe

winter which are believed to have checked the spread of the nematodes to daughter plants. In New York the diseased plants were all of the same variety "Premier" and were all traceable to one and the same source, a stock purchased from Maryland. T.G.

119—Proceedings of the Society for Experimental Biology and Medicine.

- a. SUMMERS, W. A., 1940.—"Fleas as acceptable intermediate hosts of the dog heartworm, *Dirofilaria immitis*." 43 (3), 448-450.
- b. GLASER, R. W., 1940.—"The bacteria-free culture of a nematode parasite." 43 (3), 512-514.

(119a) Complete larval development of *Dirofilaria immitis* has been obtained experimentally in *Ctenocephalides canis*, *C. felis* and *Pulex irritans*. In these fleas the life-cycle is completed in 120 hours in warm weather, whereas in experimentally infected mosquitoes 240 hours are required. From some dogs infected with heartworm 100% of the female fleas contained one or more infective larvae and many earlier stages. R.T.L.

(119b) Glaser has now been able to follow the entire life-cycle of *Neoapectana glaseri* of the Japanese beetle in sterile media through approximately 50 generations by using various media of which one based on rabbit kidney was the easiest to manipulate and gave the best results. [See also above No. 99a.] R.T.L.

120—Proceedings of the United States National Museum.

- a. LINTON, E., 1940.—"Trematodes from fishes mainly from the Woods Hole region, Massachusetts." 88, 1-172.

(120a) In this account, family by family, of Linton's collection of fish trematodes from the Woods Hole region, made in all months of the year over a long period, 26 species of Monogenea and 85 of Digenea are represented. 17 new species are figured and described and 16 apparently new forms have been assigned to genus only. Most of the known forms are briefly described and figured. Distribution data and measurements are also given. The new species are: GYRODACTYLIDAE, *Ancyrocephalus parvus* n.sp.; ONCHOCOTYLIDAE, *Onchocotyle mavori* n.sp.; DICLIDOPHORIDAE, *Diclidophora pinguis* n.sp.; MICROCOTYLIDAE, *Microcotyle furcata* n.sp., *Axine gracilis* n.sp., *Heteraxine cokeri* n.g., n.sp.; GASTEROSTOMIDAE, *Gasterostomum capitatum* n.sp.; ZOOGONIDAE, *Zoogonoides laevis* n.sp.; ACANTHOCOLPIDAE, *Stephanostomum filiforme* n.sp.; ECHINOSTOMIDAE, *Himasthla tensa* n.sp.; ALLOCREADIIDAE, *Lebouria truncata* n.sp., *Lepocreadium retrusum* n.sp., *L. trullaforme* n.sp., *Lepidapedon clavatum* n.sp.; HEMIURIDAE, *Genarches infirmus* n.sp., *Dinurus pinguis* n.sp.; unclassified, *Gargorchis varians* n.g., n.sp. N.G.S.

121—Public Health Reports. Washington.

- a. BOZICEVICH, J. & DETRE, L., 1940.—"Studies on trichinosis. VIII. The antigenic phase of trichinosis." 55 (16), 683-692.
- b. ANON, 1940.—"Sources of infection in cases of trichinosis in San Francisco." 55 (21), 942-943.
- c. WRIGHT, W. H., 1940.—"Studies on trichinosis. XIV. A survey of municipal garbage disposal methods as related to the spread of trichinosis." 55 (24), 1069-1077.

(121a) Bozicevich & Detre show that antigens develop in the rabbit within 24 hours of its being infected with *Trichina* ova, which is earlier than precipitins develop. This antigen persists for several days when transferred to clean rabbits and can induce there the development of precipitins. P.A.C.

(121b) A report published by Dr. J. C. Geiger in San Francisco shows that during the years 1929-1939, 226 cases of trichinosis have been examined with a view to discovering the sources of infection. Roughly a quarter of the cases could be traced to pork sausages, and a similar number to salami. Other types of pork serving as sources of infection are listed and 7 cases acquired from bear meat are recorded. P.A.C.

(121c) The chief source of trichinosis in America is garbage-fed pigs. Wright points out that as many municipalities dispose of their garbage to pig farmers some measures ought to be taken to ensure that such garbage is first rendered harmless. Alternatively it is suggested that the garbage should be disposed of in some other way as it is contributing at the present time to the spread of the disease. P.A.C.

122—Queensland Agricultural Journal.

- a. ROBERTS, F. H. S., 1940.—“Parasites of the horse.” 53 (4), 350-373.

123—Rapport du Directeur de la Ferme d'Expériences 'Howard Davis', Trinité, Jersey.

- a. ING, E. G., & SMALL, T., 1940.—“Potato root eelworm (*Heterodera schachtii*).” Année 1939, pp. 35-43.

(123a) A survey of Jersey was made to determine the extent of eelworm infestation. From September to December tomato and potato plants were examined in the field and thereafter soil samples were taken. Over 200 vergées (approximately 92 acres) were found to be infected to varying degrees. Measures taken to prevent the increase of *Heterodera schachtii* in the Island include treatment of isolated patches with calcium cyanamide at the rate of 2 lb. per square yard, grassing down, and regulations permitting only early potatoes and tomatoes to be grown on infected land. Restrictions are placed on the sale of seed grown on infected land, the lending of agricultural implements and the disposal of tomato canes. Infected roots must be burnt on the field. Of 64 consignments of imported potatoes examined for eelworm cysts one was found to be infected. M.T.F.

124—Review of Gastroenterology.

- a. CORT, W. W. & OTTO, G. F., 1940.—“Immunity in hookworm disease.” 7 (1), 2-14.

(124a) Cort & Otto summarize results of experimental studies on the immunity reactions of the dog hookworm and consider to what extent these are applicable to human hookworm infection. Resistance is general, not local, and specific antibodies are produced while the larvae are in close contact with the tissues. These can immobilize larvae from new infections. It is probable that the presence of a few worms is necessary to keep the immune reactions up to an effective level. The mechanism is greatly influenced by factors which debilitate the host. They believe that “hookworm anaemia” can be explained fully on the basis of blood loss, but in human cases it may be complicated by nutritional anaemia or by other diseases. P.A.C.

125—Revista Mexicana de Medicina Veterinaria.

- a. CHAVARRÍA CH., M., 1940.—“La nomenclatura actual de los ascáridos.” 3 (25), 59-62.

(125a) Chavarría has set out the correct nomenclature and synonymy of the principal ascarids of domesticated animals. [In a paper of this kind it is unfortunate that typographical errors should be so common.] B.G.P.

126—Revista de la Policlínica Caracas.

- a. JAFFÉ, R., 1940.—“Sobre la patogenia de las lesiones anatomo-patológicas bilharzianas.” 9 (50), 3321-3345.

127—Rivista di Parassitologia.

- a. PALOMBI, A., 1940.—“Gli stadi larvali dei trematodi del Golfo di Napoli. 3° contributo allo studio della morfologia, biologia e sistematica delle cercarie marine.” 4 (1), 7-30.

(127a) Palombi describes 5 new species of marine cercariae: *Cercaria misenensis* n.sp. (ubiquita group) in sporocysts from *Cerithium vulgatum*; *Cercaria ubiquitensis* n.sp. (ubiquita group) in sporocysts from *Nassa corniculum*; *Cercaria rothschildi* n.sp. (cystophorous group) in sporocysts from *Tricolia* (= *Phasianella*) *speciosa*; *Cercaria dicearchiae* n.sp. (Steringophoridae) in sporocysts from *Cerithium vulgatum*; and *Metacercaria* (*Gymnophallus*) *perligena* n.sp., a pearl-forming cyst from the mantle of *Mytilus galloprovincialis*. A cercaria similar in most respects to that of *Bacciger bacciger* (Rud.) in sporocysts from *Tellina exigua*, and one similar to *Cercaria sagittarius* Sinitzin in redia from *Cerithium vulgatum* and *C. rupestre* are described and notes given on their biology. The cercaria of the ubiquita group described by Rees (1936) from *Littorina* spp. is regarded as a distinct species and named *Cercaria reesi* n.sp. N.G.S.

128—Scientific American.

- a. ADELMAN, B., 1940.—“Silent enemies: until sanitation becomes universal man will harbor internal parasites.” 162 (3), 133-135.

129—Skandinavisk Veterinär-Tidskrift.

- a. KOFFMAN, K., 1940.—“Bidrag till kännedomen om parasiter hos husdjur och vilt i Sverige. II.” 30 (3), 286-366. [English summary pp. 365-366.]

(129a) Continuing his report on the parasites of wild and domesticated animals in Sweden [see Helm. Abs., Vol. VIII, No. 165a], Koffman here gives profusely illustrated accounts of the endo- and ectoparasites of the sheep, pig, ox and horse. B.G.P.

130—Southern Medical Journal.

- a. KERR, K. B., 1940.—“Public health aspects of the trichinosis problem in the south.” 33 (5), 511-516.

(130a) Kerr points out that trichinosis is more prevalent in the southern states than has been generally realised, many of the cases not being recognised as such. Routine examinations of human diaphragm material, made without regard to clinical or anatomical diagnosis of trichinosis, gave a total of positives of more than 15%. Infection depends mostly on the consumption of trichinous pork and the incidence was generally higher in the urban than in the rural population. P.A.C.

131—Sovetskie Subtropiki.

- a. SVESHNIKOVA, N. M., 1940.—[Citrus nematode in Soviet subtropics.] 1940, No. 1, 40-43. [In Russian.]

(131a) Sveshnikova reports the occurrence of the citrus root nematode, *Tylenchulus semi-penetrans*, in several regions of U.S.S.R., gives particulars on the morphology, dimensions and distinguishing features of the parasite and discusses methods of control which have been attempted by Thomas in California, i.e., immersing the roots of nursery stock in water at 54° C. for 10 to 15 minutes. The author considers that the nematode should be regarded as possibly a serious pest of citrus orchards and that care should be taken not to plant young clean stock close to old infected orchards. T.G.

132—Taiwan Igakkai Zassi.

- a. SATO, T., 1940.—“Einige klinische Beobachtungen über Paragonimiasis.” 39 (3), 395-403. [In Japanese : German summary p. 403.]
 b. KOBAYASI, H., YOKOI, K. & KAWABE, K., 1940.—“Parasitological investigation in Hainan-Island. II. Examination on the helminthic eggs and larvae attached to various vegetables in Hoi-how.” 39 (3), 404-408. [In Japanese : English summary p. 408.]
 c. KOBAYASI, H., YOKOI, K. & KAWABE, K., 1940.—“Parasitological studies in Hainan-Island. III. The incidence of intestinal parasites among the natives in Hoi-how and Keisan, Hainan-Island, South China.” 39 (4), 429-443. [In Japanese : English summary pp. 442-443.]

(132b) Eggs of *Ascaris lumbricoides* were found on vegetables (*Brassica sinensis*, etc.) on sale in the markets in Hoi-how. An infective larva of *Ancylostoma* was noticed on *Ipomomea aquatica*. R.T.L.

133—Transactions of the American Microscopical Society.

- a. GOWER, W. C., 1940.—“*Pseudamphimerus sterni* n.g., n.sp., a trematode from the common tern (*Sterna hirundo* Linn.).” 59 (2), 163-166.
 b. BEAVER, P. C. & SIMER, P. H., 1940.—“A restudy of the three existing species of the cestode genus *Marsipometra* Cooper (Amphicotyliidae) from the spoonbill, *Polyodon spathula* (Wal.).” 59 (2), 167-182.
 c. OLSEN, O. W., 1940.—“*Diplogymia americana*, a new species of cestode (Hymenolepidiidae) from the eastern little green heron (*Butorides virescens virescens* (Linn.)).” 59 (2), 183-186.

(133a) *Pseudamphimerus sterni* n.g., n.sp. (Opisthorchiidae) is described from under the lining epithelium of the gall bladder and duct of *Sterna hirundo* in Michigan. It differs from all other members of the family in possessing a rudimentary gonotyl and in the disposition of the vitellaria. N.G.S.

134—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. MAINZER, F. & KRAUSE, M., 1940.—“Changes of the electrocardiogram appearing during antimony treatment.” 33 (4), 405-418.
 b. ROMITI, C., 1940.—“Notes on Dr. Knott's paper on filariasis of the testicle.” 33 (6), 653-654.
 c. SENEKJI, H. A., 1940.—“Bacteriological and parasitological survey of rats in Iraq.” 33 (6), 655-657.
 d. McMAHON, J. P., 1940.—“*Onchocerca volvulus* and its vector in the South Kavirondo district of Kenya.” 34 (1), 65-83.

(134c) Rats in Iraq show an incidence of *Hymenolepis diminuta* of 18.84%. *Trichocephalus muris* occurs in 1.18%. Although *Hymenolepis nana* is not uncommon in children, it has not been found in rats. R.T.L.

(134d) McMahon investigated human onchocerciasis in the South Kavirondo district of Kenya. The infection rate, ascertained by examinations of skin samples from 609 people, was 51%. *Simulium neavei* was found to be the vector. The habits and distribution of this fly, which is the commonest species in the district, are described, but its breeding place was not found. Larvae and pupae of 8 other species were taken in the rivers and tributaries in the district. J.J.C.B.

135—Urologic and Cutaneous Review.

- a. PRICE, A. S., 1940.—“Bilharziasis or urinary schistosomiasis.” 44 (1), 56-62.

136—Veterinarski Arhiv.

- a. MIKAČIĆ, D., 1940.—“Neke primjedbe o *Protostrongylus* vrstama iz pluća ovce II.” 10 (2), 86-91. [French summary p. 91.]
- b. RAPIĆ, S., 1940.—“Neki parasitarni crvi probavnog trakta domaćih mesojeda u rentgenskoj slici.” 10 (5), 254-267. [German summary pp. 266-267.]

(136a) In 1939 Mikačić reported an apparently new species of *Protostrongylus* from sheep in Yugoslavia [see Helm. Abs., Vol. VIII, No. 67c]. Having studied 11 specimens from different localities he now regards them as constituting a new variety, *brevispiculum*, of *P. rupicaprae* Gebauer, 1932. From a useful diagram giving the ranges of spicule lengths in the various species of *Protostrongylus*, it can be seen that the spicules of the new variety are by far the shortest for the whole genus. The Yugoslavian text has a key to the sheep lungworms. B.G.P.

(136b) Rapić reproduces some interesting skiagrams revealing the presence of ascarids, *Dipylidium*, *Taenia pisiformis* and *T. taeniaeformis* in the intestines of dogs and cats. Using barium sulphate as a contrast-meal, he sees the worms as transparent zones in the opaque meal; he has not been able to find the reverse effect, previously reported for *Ascaris lumbricoides*, when the surrounding barium has moved on and the worm is made visible by the thin column of barium within its own intestine. B.G.P.

137—Veterinary Medicine.

- a. HABERMANN, R. T. & HUNT, W. H., 1940.—“Effect of commercial phenothiazine on a heavily-parasitized ram.” 35 (5), 298-300.
- b. McCULLOCH, E. C. & NICHOLSON, L. G., 1940.—“Phenothiazine for the removal of *Heterakis gallinae* from chickens.” 35 (7), 398-400.
- c. SHORB, D. A. & HABERMANN, R. T., 1940.—“Effect of phenothiazine on the development of roundworm larvae in the faeces.” 35 (8), 454-457.
- d. GREENSAFT, M. & SPENCER, R., 1940.—“The effect of hookworm infestation on the coagulation time of dogs' blood.” 35 (8), 462-463.

(137a) A ram weighing 73 lb. and showing a large oedematous swelling under the jaw, a pale skin and a dejected, tucked-up appearance was treated with 25 g. of commercial phenothiazine administered in capsules. During the succeeding 10 days the following worms were recovered from the faeces: *Oesophagostomum* 39, *Bunostomum* 36, *Trichuris* 2, *Trichostrongylus* 2, 189, *Cooperia* 21, and 55 unidentified worms. No *Haemonchus* were recovered but it is assumed that worms of this species were digested since no *Haemonchus* eggs were found subsequent to treatment. The ram made a remarkable recovery, 19 days after treatment it weighed 115 lb. and in less than 3 months had gained 51 lb. The haemocrit reading of 10 rose in 19 days to 25. R.T.L.

(137b) Phenothiazine in the feed or in hard gelatine capsules removes *Heterakis gallinae* from poultry. Between 0.05 g. and 0.5 g. was found to be a satisfactory individual dose. The optimum was not ascertained. The average effectiveness ranged from 95% to 100%. Up to 500 times the smallest effective therapeutic dose had no harmful effect on the birds but these massive doses also had no anthelmintic action.

R.T.L.

(137c) When thoroughly mixed with sheep faeces containing *Haemonchus contortus* eggs, Phenothiazine at the rate of 1% by weight inhibited the development of all larvae. When the amount used was less the larval development was retarded. If administered to the sheep at the rate of 0.25 g. per day in the food it failed to inhibit larval development but at the rate of 0.5 g. per day for 7 and 9 days inhibition was observed in cultures of faeces passed 48 hours after the giving of the first dose, and continued for 48 hours after the last dose. Where 7 g. were administered daily for 3 days the number of larvae recovered from 50 g. faeces cultured dropped from about 123,000 to 16,560 on the day following the first dose. The cultures were negative on the succeeding 3 days and larvae reappeared in the cultures made on the third day after the last dose. There was some anthelmintic effect on the adults, for the egg counts did not regain the numbers previous to treatment.

R.T.L.

(137d) Greensaft & Spencer have found that the average coagulation time of the blood of 11 dogs infested with hookworm was 119 seconds, compared with an average for 19 uninfested controls of 83 seconds. This apparent increase in coagulation time they regard as possibly due to uncontrolled factors and therefore requiring confirmation.

B.G.P.

138—Veterinary Record.

- a. HOWELL, N., 1940.—“Hydatid disease in Wales.” 52 (27), 493-495.
- b. OLDHAM, J. N., 1940.—“Hydatid disease.” [Annotation.] 52 (27), 495-497.
- c. ANON, 1940.—“Trichinosis in Pembrokeshire.” 52 (27), p. 497.

(138a) This article is a reproduction of Appendix D to the Annual Report of the Chief Medical Officer of the Ministry of Health for the year 1938. From the records of all the Welsh hospitals it appears that 144 cases of hydatid were admitted between 1927 and 1936. The majority came from the industrial districts of South Wales and comparatively few from the agricultural and sheep-raising areas. Eighty-nine, i.e., 62%, occurred in Glamorgan and Monmouth and of these 46 lived in the four county boroughs. Three cases occurred in one household in which dogs, mainly greyhounds, had always been kept. Records kept for a short period showed that 6.3% of the cattle, 3.36% of the sheep and 0.22% of the pigs slaughtered in four slaughter houses were not marketable owing to extensive invasion with hydatids.

R.T.L.

(138c) In an annotation the Veterinary Record reports the occurrence of trichinosis in a veterinary surgeon writing from Carmarthenshire who states that “there were altogether about 15 cases in and around Haverfordwest”.

R.T.L.

139—Zentralblatt für Bakteriologie. Abteilung 1. Originale.

a. SZIDAT, U., 1940.—“Neue Cercarienstudien.” 145 (7), 438-448.

(139a) Szidat describes and figures *Cercaria globocaudata* n.sp. (furcocercous) from *Planorbis planorbis*, and *C. problematica* n.sp. (echinostome) from *P. corneus*, both from the Kurische Nehrung. Rediae and cercariae of *Tracheophilus* sp. are recorded for the first time from *P. corneus*. A.E.F.